DOCUMENT RESUME

ED 428 229 CE 078 263

| | |
|---|---|
| TITLE | Self-Directed Workplace Learning. |
| PUB DATE | 1998-03-00 |
| NOTE | 35p.; In: Academy of Human Resource Development Conference Proceedings (Oak Brook, Illinois, March 4-8, 1998); see CE 078 258. |
| PUB TYPE | Reports - Research (143) -- Speeches/Meeting Papers (150) |
| EDRS PRICE | EDRS Price MF01 Plus Postage. PC Not Available from EDRS. |
| DESCRIPTORS | Adult Education; *Adult Learning; *Education Work Relationship; *Independent Study; *Labor Force Development; *Learning Processes; Manufacturing Industry; National Surveys; Systems Approach; *Teamwork |
| IDENTIFIERS | *Self Direction |

ABSTRACT

This document contains four papers from a symposium on self-directed workplace learning. "Self-Directed Work Teams: Implementation and Performance" (Marcel van der Klink, Hilde ter Horst) discusses the results of a study examining the implementation and effects of self-directed work teams in a land register office and the role of the department's human resource management department in the teams' implementation. "Mature Self-Directed Work Teams: An Investigation into Training and Development" (Mary-Jane Willis, Patricia E. Boverie) reports on a study in which management and teams in companies throughout the United States were interviewed to identify and analyze the training received by mature self-directed work teams in manufacturing environments. Differences and dynamics in organizing and improving learning systems are explored through a study of two learning system development projects in "Improving Learning Networks. No 'One Best Way' for Developing Learning Systems in Organizations" (Loes E.C.M. Tijmensen, Ferd J. Van der Krogt). "Learning-project Structures in Different Work Types: An Empirical Analysis" (Rob F. Poell) details a study during which 16 learning projects conducted by 96 participants in 3 different work types were analyzed and compared both qualitatively and quantitatively. (MN)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED 428 229

5 **Self-Directed Workplace Learning**

**Chair: Sharon J. Confessore, George Washington University**

Self-Directed Work Teams: Implementation and Performance
*Marcel van der Klink, University of Twente, Enschede, The Netherlands*
*Hilde ter Horst, University of Twente, Enschede, The Netherlands*

Mature Self-Directed Work Teams: An Investigation into Training and Development
*Mary Jane Willis, Technical-Vocational Institute*
*Patricia E. Boverie, University of New Mexico*

Improving Learning Networks. No 'One Best Way' for Developing Learning Systems in Organizations
*Loes E.C.M. Tijmensen, University of Nijmegen, The Netherlands*
*Ferd J. Van der Krogt, University of Nijmegen, The Netherlands*

Learning-project Structures in Different Work Types: An Empirical Analysis
*Rob F. Poell, University of Nijmegen, The Netherlands*

**ACADEMY OF HUMAN RESOURCE DEVELOPMENT**

**1998 Conference Proceedings**

**March 4 - March 8, 1998**
**Oak Brook, IL**

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY
M van der Klink L Tijmensen
M Willis R Poell
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2A

CE 078 263



BEST COPY AVAILABLE

# Self-directed work teams: implementation and performance

*Marcel van der Klink & Hilde ter Horst*
*University of Twente*

*In this paper the results of a study focusing on the implementation and effects of self-directed work teams in a land register office are discussed. Results show that the implementation is partly successful. The degree of implementation varies between teams but more significantly the extend of implementation varies between the clusters whereto teams belong. The role of the HRM department in the process of implementation is limited.*

Increasing attention is paid to teams as an effective mode to organize work. Teams are perceived as an adequate response to developments such as increased global competition, higher demands with regard to efficiency, production pace and flexibility, increasing complexity of work processes (Fischer, 1993; Fousert, 1996). Further it is expected that organizing work in teams will strengthen employees' involvement, and will impact positively employees' perception of the organizational climate and reduce absenteeism (Amelsvoort & Scholtes, 1994; Ray & Bronstein, 1995).
Self-directed teams are the most autonomous type of teams. These teams have a high level of autonomy regarding the prosecution of tasks and the improvement of the production process. Typical for self-directed work teams (SDWT) are the following characteristics (Luer & Palleschi, 1994; Wellins, Byham & Wilson, 1991):

- completeness: as a team the members are responsible for a specific part of the production process;
- redundancy of functions: team members are able to perform various tasks;
- autonomy: the team members as a group are responsible for the planning of activities, coordination with other teams, evaluation of team performance, improvement of the work processes, and budget issues;
- transformation of management: since the team members are responsible for traditional management tasks, the manager will serve as a coach and team facilitator.

## Problem statement

Although many advantages are associated with the introduction of SDWT, the implementation of these teams frequently encounters serious problems. The main problems are: lack of training for team members to master new tasks; insufficient training of team members communication skills and other social skills; opposition of management; absence of explicit team goals, lack of information; time pressure (Overdijk, 1996; Wellins & George, 1991). If no solutions are found for these problems there is a serious threat that the implementation fails and groups remain random collections of individuals in stead of groups with shared tasks, responsibilities and common goals. The idea of teams is popular but research focusing on implementation and organizational benefits of the introduction of teams is rather scarce. Further, it is obvious that the HRD department should be involved in organizational developments such as the establishment of teams, but the type of interventions remains unclear in literature. Most phrased recommandation in literature with regard to HRD is the emphasis on training of team members in social and communication skills.

*Copyright © 1998 Marcel R. van der Klink*

## Research questions

The need to grasp more insight in the implementation of teams and the role of the HRD department within this process was the starting point for conducting research. In this paper findings are presented stemming from a research project that investigated the implementation and effectiveness of self-directed work teams (Ter Horst, 1997b). In the research project the following research questions were central:

1) Is the concept of self-directed teams actually implemented?
2) Which factors inhibit or promote the implementation of self-directed work teams?
3) are the goals of the implementation achieved?
4) What is the contribution of the HRD department to the implementation of self-directed work teams

## Organizational context

*Reason for the study.* The research project was carried out in a large organization: the land register office. In every region a land register office is available. The land register office was always a state enterprise but in the coming years privatizing will be the main issue. This means that the land register office must place more emphasis on delivering high quality services to (new) clients in order to compete successfully with private companies. Originally the organization was rather hierarchical, bureaucratic and Tayloristic. To establish an organization that has more potential to serve the clients' requests since 1995 self-directed work teams are implemented. While in the old organization work tasks were combined into departments (functional division of tasks), in the team-based organization all land register tasks were combined into teams that serve clients in a specific geographic area for a wide range of services. Due to restricted sources the research project focused on the SDWT in one regional land office.

*New organizational structure.* In total nine teams were established in this regional land office. These teams are divided into two clusters. One cluster (named LLZ), consisting of six teams, focuses on the measurement of properties and the storage of land register information. The other cluster (called BJZV) consists of three teams and they deal with the legal aspects of land register services. Both clusters have their own cluster manager and every team has a team manager. In this organization there exists no separate HRD department. There is a small HRM department whit two staff members.

*Implementation of the teams.* In this regional land office the first steps towards the introduction of SDWT were made in 1993 with the establishment of a task force wherein, among staff members, employees of all departments were represented. This task force investigated the feasibility of the introduction of SDWT. As a result of this investigation pilot teams were formed in the beginning of 1995 and a few months later all employees were allocated to teams. The organization stated that at the end of 1996 the implementation should be concluded and completely autonomous SDWT should be operational.

## Methods

Three instruments were used for data collection: a questionnaire for team members, a questionnaire for team managers and cluster managers and additional interviews with key-employees involved in the implementation of the teams. Due to the limited space only attention will be paid to the survey among the team members.

*Survey.* To collect information of team members written questionnaires were found to be the most adequate instrument. The choice for a survey was also based on the experiences with a previous

evaluation in this organization. In the previous evaluation, carried out in 1996, group interviews with team members were used to collect data. Team members complained about this data collection procedure because they experienced that not all their comments were incorporated in the final evaluation report. Although group interviews, compared to written questionnaires, have the major advantage to collect more in-depth information the previous experiences of team members with group interviews could reduce their willingness to cooperate. Further, written questionnaires have the advantage that the anonymity of respondents is guaranteed. The following topics were included in the questionnaire. 1) Characteristics of team members such as age, job description and seniority. 2) Attention was paid to the preparation of employees before teams were implemented. In total nine items with four-point rating scales were formulated that focused on the employee's knowledge concerning the reasons for the introduction of SDWT and the changes in employee's tasks and responsibilities. 3) Based on a study of available documents within the organization and a review of literature twelve items were formulated that reflected the problems that might occur in teams. Examples are: cooperation between team members, working without direct supervision; uncertainty of the employee regarding his role in the team, uncertainty of the employee regarding new tasks to master. For every problem team members were asked to rate whether this was a problem for them at the start of the SDWT (1995) and at the time of the survey (May, 1997). Items had a two-point scale (yes/no). 4) If respondents rated the above mentioned problems with 'yes', they were asked to fill in what activities were undertaken to solve the problem. To assist respondents seven possible activities were mentioned in the questionnaire, such as assistance of team manager, attending training, discussion with colleagues, assistance of the HRM-department. 5) To measure the degree of current self-directedness of the teams respondents were asked to rate 15 items regarding the responsibility for traditional managerial tasks in their team. These items were previously used by Amelsvoort & Benders (1996). Respondents were asked to rate each item on a 3-point scale: team is responsible, team is partly responsible, team manager only is responsible. 6) To measure whether the goals of the SDWT were achieved eight items were constructed. Items were based on the goals set by the organization at the start of the implementation phase. Respondents were asked to rate every item for two time intervals: 1995 and May 1997. Four-point rating scales were used.

*Data collection procedures.* Questionnaires were mailed together with a letter to inform team members about the goals of the study and to assure them entire anonymity. One week after the mailing a reminder followed through e-mail.

**Results**

*Response rate.* Questionnaires were mailed to 116 team members of nine teams. In total 63 team members returned their questionnaire. Because of the acceptable response rate (56%) no additional investigation of the non-response was scheduled. The response rate per team varied between 4 to 11 returned questionnaires, while the average size of a team is 12 team members.

*Characteristics of team members.* A striking feature of this land register office is the employees' seniority. The majority of the respondents (78%) works 20 years or longer at the land register office and 80% of the respondents is older than 40 years.

*Information about the concept of SDWT.* At the start of the formation of the teams team members were informed about various aspects of the forthcoming implementation of the SDWT. Information was provided through group meetings. In the survey nine items focused on nine different subjects that are related with the implementation of SDWT. For every item respondents were asked how well they were informed about it before the teams were established. The results are displayed in Table 1. As the mean scores show respondents received sufficient information. An exception are the information about the tasks the respondent own team will be responsible for and the shift in working hours in order to expand time to serve clients. Investigated is whether the degree of information varies

between teams. The results of the oneway analyses with team as independent variable are displayed as well in Table 1.
For five of the nine subjects differences exist with regard to the degree of information ($p < .05$). Further with the use of the t-test differences between the two clusters were investigated. As was mentioned above in the section organizational context, the nine teams are divided into two clusters. Results of the t-tests show that for 6 subjects there existed differences that are statistically significant ($p < .05$). The mean scores for both clusters revealed that respondents from the cluster BJZV were much more informed than the respondents of the cluster LLZ.

**Table 1. Team members' knowledge regarding various subjects related with the implementation of SDWT and differences between teams and clusters**

| | | | *differences between the nine teams* | | *differences between the two clusters* | | |
|---|---|---|---|---|---|---|---|
| *subject* | *Mean*[1)] | *sd* | *F value* | *p* | *t-value* | *df* | *p* |
| 1 concept of SDWT | 2.58 | .74 | 1.81 | .10 | 1.38 | 58 | .17 |
| 2 causes for SDWT | 2.61 | .87 | 2.66 | .02 | 3.62 | 56.94 | .00 |
| 3 responsibility members | 2.70 | .84 | 1.32 | .26 | 1.79 | 57 | .08 |
| 4 tasks of the team | 2.35 | .80 | 3.13 | .01 | 2.73 | 58 | .01 |
| 5 changes in job content | 2.72 | .74 | 2.48 | .02 | 3.60 | 58 | .00 |
| 6 training for new tasks | 2.53 | .82 | 2.93 | .01 | 3.65 | 57 | .00 |
| 7 cooperation in team | 2.62 | .79 | 1.93 | .08 | 3.37 | 56 | .00 |
| 8 shift in working hours | 2.23 | .87 | 4.71 | .00 | 5.88 | 58 | .00 |
| 9 role team manager | 2.72 | .78 | .35 | .94 | 1.38 | 58 | .17 |

1) items were rated on a 4-point scale. A higher score indicates more knowledge

*Problems during the implementation.* With regard to the problems that occurred in the year that the teams were established (1995), four problems were prominent. These were: the cooperation within the team (rated by 26 respondents); how to cope with conflicts (rated by 23 respondents); to find out what exactly are the tasks the team is responsible for (rated by 21 respondents); the daily prosecution of the tasks (rated by 20 respondents). Respondents were asked to rate the same list of problems for the moment the questionnaire was mailed (May 1997). A comparison of both time intervals show a considerably reduction of problems. The problem mentioned most frequently concerns the cooperation with in the team (rated by 14 respondents). Further, respondents were asked for every problem the perceived at both time intervals to indicate what activities were undertaken to solve the problems. Answers show that respondents most frequently discusses problems with their team manager or their team members. Assistance of the HRM department or the use of training was hardly mentioned as a mean to solve the problem.
*Degree of self-directedness.* To measure the current degree of self-directedness of the teams respondents were asked to rate 15 items focusing on performing traditional managerial tasks. In Table 2 the mean scores of these items are displayed together with the results of the oneway analysis (with the nine teams as independent variable) and with the outcomes of the t-tests (with the two clusters as independent variable).

As the means of these items indicate team managers still perform managerial tasks. The organizational intention to make team members more responsible for managerial tasks is only partially realized. Respondents view they have more responsibilities regarding operational managerial tasks. For strategic managerial tasks such as the team financial budget, the selection of new team members, controlling the output level, and decisions regarding training respondents experience no responsibility at all.
Further, there exists differences between the teams but the differences between the two clusters are more considerable. Observation of the mean scores of both clusters show that, with a single exception, respondents of the cluster BVJZ are more involved in the prosecution of traditionally managerial tasks.

**Table 2. Mean scores and differences between teams and clusters with regard to the responsibility of managerial tasks**

| | | | *differences between the nine teams* | | *differences between the two clusters* | | |
|---|---|---|---|---|---|---|---|
| *task* | *Mean*[1] | *sd* | *F value* | *p* | *t-value* | *df* | *p* |
| 1 prosecution daily work | 1.38 | .52 | 2.74 | .01 | 4.40 | 56.58 | .00 |
| 2 arranging meetings whole team | 1.42 | .53 | 1.66 | .13 | 1.92 | 57 | .06 |
| 3 permission leave/holiday | 1.63 | .80 | 5.90 | .00 | one sample has no variance | | |
| 4 arranging temporary personnel | 1.75 | .77 | 2.51 | .02 | 5.00 | 57.76 | .00 |
| 5 selection new members | 2.60 | .62 | 1.92 | .08 | 2.88 | 34.78 | .01 |
| 6 mentoring new employees | 1.49 | .65 | .73 | .67 | 1.79 | 57 | .08 |
| 7 checking work | 1.57 | .68 | .49 | .86 | .03 | 56 | .97 |
| 8 quality control | 1.93 | .81 | 1.59 | .15 | 3.03 | 56 | .00 |
| 9 output level | 2.58 | .65 | .99 | .46 | 1.13 | 57 | .26 |
| 10 clients' problems | 1.92 | .65 | 1.70 | .12 | 3.10 | 57 | .00 |
| 11 repair of mistakes | 1.53 | .54 | 1.37 | .23 | 2.66 | 57 | .01 |
| 12 improvement work | 1.67 | .58 | 1.60 | .15 | 2.62 | 55 | .01 |
| 13 solving conflicts | 2.07 | .58 | 2.64 | .02 | 3.24 | 57 | .00 |
| 14 training decisions | 2.71 | .49 | 1.80 | .10 | 1.29 | 57 | .20 |
| 15 budgeting | 2.91 | .29 | .65 | .73 | .07 | 55 | .95 |

[1] Items were rated on a 3-point scale. Higher score indicates more responsibility for the team manager

*Achievement of the goals.* At the start of the formation of teams goals were formulated to be achieved by the implementation of the SDWT. These goals are listed in Table 3. In the survey respondents were invited to rate to what extend these goals were realized at the start of the teams in 1995 and at the time of the survey (May 1997).
These goals are divided into two groups. The first group consist of organizational goals, while the second group is identified as employee benefits. The first four rows in Table 3 display the

organizational goals. As the mean scores and the results of the t-tests indicate teams succeed to improve their performance with regard to meeting clients' orders, accomplishing the intended output level and scheduling work on a weekly basis. With regard to the fourth aspect, scheduling work tasks on a monthly basis, this is hardly performed adequately by the team members in 1995 and this continues to be unsatisfactory in 1997. The last four rows in Table 3 display the intended employee benefits of the implementation of the SDWT. As the mean scores show the understanding of the work processes and the work satisfaction were already high at the start of the teams and they increased further. For the other two employee benefits, job rotation and job enrichment, the data suggests no improvement or even a small decrease. Thus job rotation and job enrichment were no common practice in 1995 and two years later they are still hardly applied.
Further, investigation took place of differences between teams and clusters with regard to the achievement of the goals. Again the differences between the two clusters are more considerable than the differences between teams. Because of the limited space the F values and probability levels will not be displayed but the results show that the two clusters differ significantly with regard to the achievement of five goals (output level; weekly work schedules; job enrichment; job rotation within team; work satisfaction). The respondents of the cluster BJZV rated higher levels of achievement for the year 1997.

**Table 3. Levels of achievement implementation goals in 1995 and 1997**

| | *1995* | | *1997* | | *differences between the two time intervals* | | |
|---|---|---|---|---|---|---|---|
| *goals* | *Mean*[1)] | *sd* | *Mean*[1)] | *sd* | *t-value* | *df* | *p* |
| meeting clients' orders | 2.60 | .65 | 3.09 | .60 | -4.33 | 44 | .00 |
| meeting output volume | 2.66 | .73 | 3.00 | .78 | -2.06 | 40 | .05 |
| weekly work schedules | 2.45 | .83 | 2.86 | 1.02 | -3.12 | 50 | .00 |
| monthly work schedules | 1.72 | .61 | 2.20 | .94 | -3.65 | 49 | .00 |
| understanding processes | 2.72 | .77 | 2.85 | .69 | -.88 | 52 | .38 |
| job enrichment | 2.53 | .80 | 2.36 | .86 | 1.20 | 52 | .24 |
| job rotation within team | 2.21 | .85 | 2.27 | .84 | -.48 | 51 | .64 |
| work satisfaction | 2.60 | .95 | 3.09 | .77 | -3.60 | 52 | .00 |

1) Items were rated on a 4-point scale. A higher score indicates a higher degree of realization

## Conclusions

In this organization teams are established in 1995 with the expectation that these teams will be transformed into autonomous self-directed work teams at the end of 1996. To evaluate whether this is realized a study was set up in 1997 to investigate the results of the establishment of the teams. Due to the limited space in this paper attention is only paid to the results of the survey among team members. It is noteworthy to mention that the other two methods used in this study (questionnaire for team managers and cluster managers, and interviews with key-persons) confirmed more or less the results of the survey among team members.
*Degree of implementation.* The first question focused on the degree of implementation of the concept of SDWT. For a successful implementation it is required that participants are informed about the

forthcoming changes. The data indicate that team members received sufficient information. Teams belonging to cluster BJZV received more information than the teams of the cluster LLZ. To assess further the degree of implementation the current division of responsibilities for traditionally managerial tasks was investigated. For the majority of tasks team members are responsible or have some responsibility. Tasks they do not perform can be characterized as strategic managerial tasks belonging to the core of the traditional manager function, such as budget and training issues. Between teams there exist differences with regard to the degree team members are responsible. But more significantly are the differences between the two clusters. In the cluster BJZV team members have more responsibility for managerial tasks.

*Problems occurring during implementation.* The second research question focuses on the problems teams have to overcome. As the results indicate four problems were prominent in 1995 at the start of the teams. In 1997 these problems were much less prominent and no new problems occurred. Remarkable is that when problems occur teams have a strong preference to solve these themselves. Problems are discussed with colleagues or with the own team manager. More professional help to overcome problems, like training or assistance of the HRM department are hardly used.

*Achievement of the goals.* In total eight goals were set by the organization. Four of these can be characterized as organizational goals: meeting clients' orders; meeting production volume; teams are able to schedule work on weekly basis; teams are able to schedule work on a monthly basis. As the results of the study indicate the first three goals are more or less achieved in 1997. The latter goal is not realized. Further the establishment of teams was perceived as a tool to increase the quality of work and to impact employees' work involvement. The data show that employees experience nowadays more understanding of the work processes and they have a high level of work satisfaction. More structural organizational changes to increase the work quality, like job rotation and job enrichment are hardly applied. Thus taken into account the goals, the establishment of teams may only be perceived as partly successful. In this respect the levels of achievement are higher in the teams belonging to the cluster BJZV.

*Differences between the two clusters.* The results of the survey reveal that there exist differences between teams with regard to the degree of information prior to the establishment of the teams, the responsibilty of team members for managerial tasks and the level of achievement of the implementation goals. More significant than differences between teams are the differences between the clusters whereto the teams belong. In general teams belonging to the cluster BJZV are better informed, bare more responsibility for managerial tasks and have higher levels of goal realization. There are several explanations for the differences between the two clusters. The most obvious explanation is that teams belonging to the BJZV cluster have team managers and a cluster manager with positive attitudes toward the SDWT. A second explanation might be that the work activities of the three BJZV- teams are easier to organize in teams.

*Contribution of the HRD department.* The last question focuses on the role of the HRD department in the process of implementation. In this organization there is no separate HRD department but this is integrated in the small HRM department. This department plays no significant role in the process. This is partially explained by the team members preference to solve their own problems and they ask hardly no assistance of the HRM department. On the other hand it is unsure how active the HRM departments was in offering help to teams and team managers.

*Explanations and recommendations.* Our conclusion is that the idea of SDWT is partially implemented in this organization. Crucial aspects of the concept of SDWT are not present in the teams, such as job rotation, job enrichment, and the prosecution of management tasks by team members that belong to the core tasks of the manager. In terms of Amelsvoort & Scholtens (1994) the teams can be defined as 'groups' and only when all managerial tasks are performed by team members these groups become self-directed work teams. It is not uncommon that SDWT are not implemented entirely since the allocation of managerial tasks to team members seems to be a frequent problem (Amelsvoort & Benders, 1996). The main question is what should be done to transform these groups into SDWT. It

is likely that the key for further progress lies in the roles and attitudes of team managers and cluster managers. Therefore, it is important in the yearly assessment of team managers to focus on their contribution to the process of their SDWT. In our view the need for training and guidance for team members to master the more strategic core managerial tasks and for team managers to become coaches is present. Further we believe that team managers can learn from each other since the data indicates that in one cluster (BJZV) the implementation was more successfully than in the cluster LLZ.

*Limitations of the study.* A major problem is the lack of clear concepts and scales to measure team characteristics and to assess the developmental stage of teams. Further on a conceptual level it is not clear what should be the role and activities for the HRD department to assist organizations in their attempts to establish SDWT. A limitation specific for this study was the choice to ask respondents to assess the situation in 1995, while the survey was held in 1997. Although we are aware that recalling information may cause some bias in the results, there were no other alternatives to gain insight in important team characteristics in their first year of existence.

**References**

Amelsvoort, P. & G. Scholtes (1994). *Zelfsturende teams, ontwerpen, invoeren en begeleiden. (self-directed teams, design, implementation and coaching).* Oss: ST-groep.

Amelsvoort, P. & Benders, J. (1996). Team Time: a model for developing self-directed work teams. *International Joyurnal of Operations & Production Management,* 16, 2, pp. 159-170.

Fischer, K. (1993). *Leading self-directed work teams: a guide to develope new teamleadership skills.* New York: McGraw-Hill.

Luer, M. & P.D. Palleschi (1994). Self-directed work team development. *Human Resources Management & Development Handbook,* pp. 866-875. New York: Amacon.

Overdijk, C. (1996). Baas in eigen team (boss in your own team). *PW,* (20),2, pp. 12-15.

Ray, D. & H. Bronstein (1995). *Teaming up: making the transition to a self-directed team-based organization.* New York: McGraw-Hill.

Ter Horst, H. (1997a). *Ontwerp en implementatie van zelfsturende teams (design and implementation of self-directed work teams).* Literatuurscriptie (review of literature). Enschede: Universiteit Twente.

Ter Horst, H. (1997b). *Implementatie en effecten van taakgroepen (implementation and effects of teams).* Enschede: Universiteit Twente.

Wellins, R.S. & J. George (1991). De sleutel tot zelfsturende teams (the key to self-directed teams). *HRM-select,* (3),3, pp. 69-81.

Wellins, R.S., Byham, W.C. & J.M. Wilson (1991). *Empowered teams: creating self-directed work groups that improve quality, productivity and participation.* San Francisco: Jossey-Bass Publishers.

# Mature Self-Directed Work Teams: An Investigation into Training and Development

*Mary Jane Willis*
*Technical-Vocational Institute*

*Patricia E. Boverie*
*University of New Mexico*

*The purpose of this research was to identify and analyze the training received by mature self-directed work teams in manufacturing environments. Questionnaires and interviews were used to collect data from management and teams in companies throughout the United States. The findings suggest that management is supportive of team training; works to identify team training needs; and that training is offered close to its implementation. However, the training does not always support continued team growth and self-direction.*

"Two realities are shaping organizational life in American today. The first reality is that all organizations are faced with the same primary challenge: they will either produce consistently superior services and products, or they will soon not be producing much at all. The second reality is that superior teamwork and developing superior work teams have been demonstrated to be the only consistent strategies for producing superior services and products. The evidence is now quite unequivocal. Teams and teamwork make the competitive difference" (Kinlaw, 1991, p. xiii).

This study concentrated on examining training, management's support of training and a team's involvement in training for the mature self-directed work team. A mature self-directed work team was defined as a group of persons who have been empowered with decision making responsibilities and authority. Wellins, Byham, and Dixon (1994) described a mature team as a team that has matured in terms of "...sophistication, confidence, skills and areas of responsibility... At the mature team level, the team and its members [take]a larger view of responsibility – often involving suppliers and customers. Member also are involved with cross-functional process improvement and reengineering teams" (p. 15).

Because of the managerial nature of some of these responsibilities, team members need to be given the opportunity to develop new skills and new ways of working. Vogt and Murrell (1990, p.94) state that organizations must "...recognize that development means education and learning; and they [must]conduct training programs that recognize the personal, organizational, and task needs of the system."" Initially, "team members need training in work-team awareness, technical skills, interpersonal, problem-solving and administrative procedures" (Orsburn, Moran, Musselwhite, and Zenger, 1990, p. 271). But what about after the team has worked together for more than a year and has been given additional responsibilities? Is team awareness training still necessary? Should interpersonal skills training be revisited? What training is required once a team reaches a mature level of self-direction?

To provide more information of the needs of mature teams this study examined the following research questions:

1. What areas of training are required by teams to support their continued growth and acceptance of responsibilities?
2. Are mature self-directed work teams receiving the type of training necessary to provide continued growth and acceptance of responsibilities?



*Copyright©1998 Mary Jane Willis*

3. How do teams rate themselves in various skills and how does the training they receive support the ratings?
4. What part do management and teams play in identifying the training needs of the teams?
5. What is management's support of the self-directed work team and training for the self-directed work team?
6. Do teams see training as an integral part of their regular activities?

## Methods

***Research Participants*** Two hundred twenty-five manufacturing companies were randomly selected from the over 300 manufacturing companies listed in the 1990 Fortune 500 companies. In addition, 50 New Mexico companies were randomly selected from a listing of New Mexico manufacturers. An additional 25 manufacturing companies were selected for their noted success in working with teams from the literature. Of the 300 companies surveyed, 74 companies responded for a 25% response rate. Of the 74 companies responding, 25 had mature self-directed work teams operating at one of the levels of self-direction defined in the questionnaires. The remaining 49 companies either had no self-directed work teams, were in the start-up phase of team development, or declined to participate in the research. Twenty-eight Team Questionnaires were returned representing 23 companies and 14 Management Questionnaires were returned representing 14 companies.

***Research Instruments*** Two questionnaires - one for the work team and one for management - were developed. Questions addressed mature team training, a team's participation in its training, and management's support of team training. Three demographic questions were included that identified the level of team self-direction, the number of years at this level and the size of the team. Questions were either Likert scale or multiple choice.

***Procedure*** A research package was sent to the director of training or human resources at each of the companies. Each package contained a cover letter, a Management Questionnaire with return envelope, and two Team Questionnaires with return envelopes. The criteria for participating in the research was stated in the cover letter to the director. Companies were asked to participate only if they met the following criteria: they were a manufacturing company; they had self-directed teams that were empowered with decision-making responsibilities and authority; and these teams had existed for at least one year.

For companies that met the criteria, the director was asked to distribute the Management Questionnaire to a management team and the Team Questionnaire to two self-directed work teams that had been working together for at least one year..

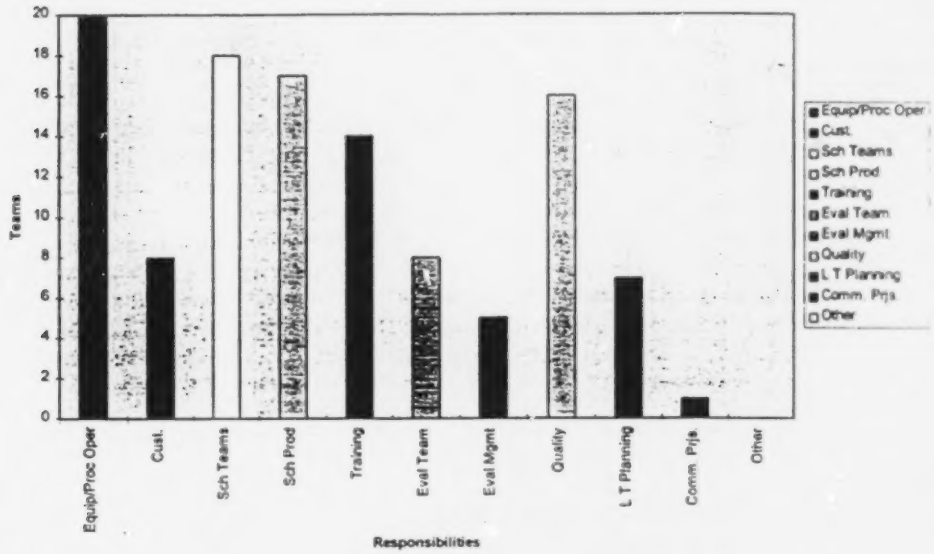
## Results

***Research Question 1.*** *What areas of training are required by teams to support their continued growth and acceptance of responsibilities?* It is obvious from the research that team responsibilities do continue to increase. From the questionnaires, 88% of the teams, and 77% of management indicated an increase in team responsibilities during the past year. Increased responsibility was primarily in the following five areas: equipment/process operations, scheduling of team activities, scheduling production activities, quality assurance/quality control projects, and training. See Figure 1. Each of these five responsibilities have been given to over 50% of the teams. Two other areas, dealing with customers and evaluation of team/team members, were each new responsibilities for 30% of the teams.

The Management Questionnaire asked, "To what do you [management] attribute the teams' ability to accept more responsibility? The primary factors that enable teams to take on new responsibilities are the "team's training" and the "willingness of management to take chances."

Other reasons include the teams' "total knowledge of process and responsibility" and "management's willingness to involve them and engage them in more of the business."

Figure 1: Added team responsibilities during the past year




***Research Question 2.*** *Are mature self-directed work teams receiving the type of training necessary to provide continued growth and acceptance of responsibilities*? This study found team training to vary from company to company, team to team. The differences were due to a variety of factors, such as management support, corporate philosophy, team responsibilities and team maturity.

Ninety-three percent of the teams responding to the questionnaire had received at least one training course during the past year. Forty-four percent had received 10 classes or more, with the most number of courses for any one team being 22. A correlation coefficient was calculated for the relationship between the number of course and level of self-direction. Sixty-seven percent of the teams identified at least one training class as needed, but not being received. Two teams indicated no training being received and none being needed; however, their final comments implied a problem existed. One team member summed it up by stating, "As you can see from this survey, we need more training." In a follow-up interview, a team member stated, "We haven't really been trained very well. When we were formed, we didn't get any training, and we still don't."

Training most frequently received in the past year included: teambuilding, conflict resolution, managing diversity, giving/receiving feedback, problem-solving, statistical process control, mechanical skills, computer skills, and quality management. One skill, teambuilding, was received by more than 50% of the teams responding. The remaining topics had been received by less than 50% of the teams. Three of the companies interviewed stated that most of the training had been completed by the majority of teams prior to the last year. The literature showed that most teams receive team and interpersonal skills training during their first year. Subsequent training is directed toward improvement of team skills, technical skills, and training for new responsibilities.

When asked to identify the areas of *training needed, but not being received*, teams identified "Managing Change" and "Managing Stress" with the most frequency. Managing

Change was identified by 25% of the teams, and Managing Stress by 19%. Need for this training was further supported in the follow-up interviews.

In addition to the current training and the needed training, teams were asked to identify the *most useful* training received. In an interview with a manufacturing team, the members identified "Managing Stress" as on e of the most important courses they had received. In the questionnaires fourteen different topics were indicated by the 16 teams responding to the question. Six responses were in the area of team and interpersonal skills and eight under management skills. The areas are problem-solving/flowcharting, Meyers Briggs, building trust, decision making, Zenger-Miller's working program, self-motivation, effective meetings, giving/receiving feedback, statistical process control, teambuilding/team effectiveness, managing change, and conflict resolution.

Management was asked to identify the most important areas of training for the mature self-directed work team. Fifty percent indicated communication skills. Management identified interpersonal skills as a lessor strength of teams.

Teams were asked to identify their strengths and weaknesses. Two major team strengths identified by the majority of the teams were productivity and team camaraderie. Three less strengths were lack of support from management, lack of training for all required tasks/responsibilities, and lack of participation by all team members. The two major strengths were supported by over 74% of the teams, whereas all of the lessor strengths were identified by less than 30% of the teams.

Management was also asked to identify the strengths of self-directed work teams. Ninety-three percent of management support the team responses by identifying *better productivity* as a major team strength. Other team strengths indicated by more than 50% of management were better working environment, better understanding of each other's needs, increased exchange of ideas/knowledge, and commitment to the organization. The lesser strengths of self-directed work teams as seen by management were primarily interpersonal problems (50%) and trying to take on too much too soon (43%).

The results from the questionnaires and follow-up interviews show that the majority of self-directed work teams have received *some* training during the past year. However, this training, *less than often*, supported continued growth and acceptance of new responsibilities. More than 60% of the teams needed training that was not being given.

***Research Question 3.*** *How do self-directed work teams rate themselves in various skills and how does the training they receive support the ratings?* Teams and managers were asked to rate the teams in the following skills - technical, work habits, interpersonal, communication, managerial, productivity and quality assurance. Teams rated themselves highest in the areas of productivity and quality assurance. Management supported the teams' high rating of productivity. Ninety-two percent of managers' responses identified better productivity as a major strength of self-directed work teams and 85% identified increased productivity as a benefit. The lowest team skills rating was given to managerial skills and communication. These areas were rated as lesser strengths of work teams by 50% of management.

For at least 33% of the teams, the past year's training supported productivity and quality assurance. Statistical process control was received by at least 50% of the teams. Problem-solving and quality management were received by 33%. Technical skills training had been received by 93% of the teams surveyed. This training was accomplished through on-the-job instruction by other team members.

The low rating in managerial skills is supported by the lack of training in supervisory skills, leadership skills, time management, project management, report writing and needs assessment. Training in these areas was received by less that 15% of the teams during the past year.

After rating their skills in the seven areas, teams were asked "What is being done to improve upon any of these skills?" The responses showed that 74% of the teams were "working to solve some of its problems." Forty-one percent indicated that "training in problem areas is being provided." Companies with highly supportive management were found to work directly with the teams in helping them solve problems they were unable to solve themselves.

In summary, the average rating for all skills, except managerial and communication, was good or better. Technical training is mainly being supported through on-the-job training by team members. Work habits are reinforced through team norms and codes of conduct. Interpersonal and communication skills, are found to be a continuous problem among teams and are being dealt with by the teams with management's support upon request. Managerial skills are not being supported with training. Productivity and quality assurance have the highest rating and are strongly supported with training in SPC and quality management.

***Research Question 4.*** *What part do management and teams play in identifying the training needs of the teams?* At maturity, it is important that teams become involved in identifying their own training needs. This responsibility provides teams with the ability to address problems as they see them and to build on the skills and knowledge of the team members. A mature team should know what it needs and when it needs it.

Teams indicated that 88% of them were responsible to identifying their own training needs. This was contradicted by management's' responses, where only 14% of management saw teams as solely responsible and 21% saw management as solely responsible. The remaining 65% found this responsibility to be shared by at least two sources, primarily, the team and management. Other sources were the training department, human resources and individual team members.

Team responses showed that teams identify their own training needs primarily through "requests by one or more team members." Other methods that are used include "recurring team problems", "team evaluations" and "recurring process problems." Forty-three percent of the teams use more than one method.

Questionnaire responses indicate that the responsibility of identifying team training needs is shared between management and the teams even though teams see it differently. Management normally requires everyone to receive the basics. Additional training is mostly voluntary and determined by the teams with some guidance from management. Specific training is usually requested by teams or a team member.

***Research Question 5.*** *What is management's support of the self-directed work team and training for the self-directed work team?* A review of the literature identified the importance of management's support for the self-directed work team and for providing the necessary training. In order for teams to reach any level of self-direction, management must openly support the concept and provide the training necessary for teams to mature. On questions which asked if management is supportive of training and supportive of the self-directed team concept, both management and teams rated management's support as being *often*. Teams were asked to identify management's behavior toward team efforts. At least 50% of the teams see management's most supportive behavior as "support of training and training requests," "backing of team decisions," "open communication," and "encouraging total involvement." None of the management responded that they had "no involvement" in team training.

***Research Question 6.*** *Do teams see training as an integral part of their regular activities?* In order for teams to mature and accept new responsibilities, training is needed. Under the self-directed concept, continued growth is a goal with training as a means for achieving this goal. Management and teams were asked to rate the frequency as to whether "training is an integral part of the teams' regular activities." Thirty-three percent of the teams and 21% of management rated this statement *Never* or *Sometimes*. These results indicate that management, more than the work teams, see training as an integral part of the teams' regular activities.

**Discussion**

The main purpose of this research was to identify and analyze the training received by mature self-directed work teams in a manufacturing environment. In addition, the research sought to identify the teams' involvement in identifying their own training, and management's support and involvement in team training.

***Recommendations*** This research has found various practices that support mature self-directed work teams. It has also identified areas for improvement in training, identifying and scheduling of training, and management support. Established was the fact that mature self-directed work teams do continue to accept new responsibilities and are receiving some training. However, the training being received is not always what the team needs. When comparing responsibilities against training, the research identified a few discrepancies.

Many of the responsibilities being given to mature self-directed work teams require managerial skills, such as scheduling, reporting, and evaluation. The research found a minimum of training directed toward these tasks. In addition, teams indicated that their managerial skills needed improvement. Team evaluations need to assess the managerial skills of the teams and management needs to provide training to support these skills.

During the past year over 50% of the participating teams gained responsibilities in the areas of equipment/process operations and quality control projects. Thirty percent began working with customers. These responsibilities can be greatly enhanced with a broad knowledge of business concepts. To be more effective in these areas, teams need training in the following areas (Wellins, 1994, p. 340; Christison, 1994, p. 47):

- the range of the company's process, products and services;
- the process flow and the links between one's own team and other teams;
- dealing with customers and identifying customer needs;
- financial performance and the link between finance and operations; and
- quality concepts and application of quality tools.

Training in business concepts will provide teams with a better understanding of how their work affects the business inside and outside the company. It also provides job flexibility and provides teams with the tools to make sound decisions.

The added responsibility of dealing with external customers creates a need for team members to sharpen their communication skills. Teams should revisit communications training where they can practice these skills with people outside the company. Such training would help improve the overall communication skills of the teams, improving communication inside the company.

Another valuable area of training for mature self-directed work teams is "train-the-trainer." The research found that the majority of teams do train new members and cross-train each other on the technical skills require of the job. However, less than 15% of the companies were found to offer any training dedicated toward teaching team members effective training techniques. Train-the-trainer courses would make team member training more effective.

This study identified interpersonal skills as a continual problem with self-directed work teams. As teams continue to take on responsibilities, problems become harder to solve leading to interpersonal problems among members (Kaeter, 1994). However, putting teams back in the classroom is not the solution. The research found, that overall, teams prefer to solve their own interpersonal problems; but when solutions are out of their reach, they need management to facilitate. Mature teams prefer to solve interpersonal problems as quickly and as quietly as possible. Once teams become self-directing, interpersonal skills training should be provided immediately upon request and should deal directly with the current problem. Participation in the training should be determined by the team. Some teams were found to deal with such issues as a team while others preferred to involve only those members directly affected.

Other areas of training that were identified as being needed by teams were managing change and stress. Such training is needed to help teams deal with the changes in team membership, team responsibilities and accountabilities, and changes in the organizational structure.

The research found that the responsibility for identifying the training needs of mature teams is shared between management and the teams. The literature supports team ownership of this responsibility. Organizations thrive when teams take responsibility for their own learning and take ownership of identifying their own training needs (Bennett and O'Brien, 1994). However, until teams become proficient in evaluating their skills and identifying areas that need

improvement, they will need management support. Therefore, for a team to become totally self-directed in identifying its own training needs, management must provide training for effective self-assessments. Companies with mature self-directed work teams were found to have a supportive management.

***Recommendations for further study*** Of the 74 companies responding to the research, only 23 had mature self-directed work teams. There is little known about the needs and practices of mature self-directed work teams. In was not until 1993 that the research began describing mature teams. Most of the research deals with start-up teams and the establishing of work teams. Research should continue to study the evolution of these teams. Studies in any of the following areas would be beneficial in helping organizations maintain successful work teams:

- training for full accountability of work teams;
- middle management in the self-directed environment;
- team and team member evaluation and skill assessment;
- responsibilities of the mature work team; and
- effectiveness of the self-directed work team.

***Summary*** Training is a tool that is used by self-directed work teams to make improvements and to prepare them for new responsibilities. Identifying training needs is the responsibility of the mature team. Providing the resources for training is the responsibility of management. Training for the mature self-directed work team needs to be more focused toward preparing teams to accept new responsibilities and allowing teams to make improvements. Management should evaluate its training programs to ensure that the resources spent on team training support team growth. Companies with mature self-directed work teams must establish and maintain an environment where training is a component of its continuous improvement process and is integrated into the culture of the organization.

**References**

Bennett, J.K., O'Brien, M.J. (1994, June). The building blocks of the learning organization. Training, pp. 41- 49.

Christison, W. (1994, July). Financial information is key to empowerment. Quality Progress, pp. 47- 48.

Kaeter, M. (1994, April). Repotting mature work teams. Training, pp. 4 -6.

Kinlaw, D. (1991). Developing Superior Work Teams. California: University Associates.

Orsburn, J., Moran, L., Musselwhite, E., Zenger, J. (1990). Self-directed Work Teams. Illinois: Business One, Irwin.

Vogt, J., and Murrell, K. (1990). Empowerment in Organizations. California: Pfeiffer.

Wellins, R., Byham, W., and Dixon, G. (1994). Inside Teams. California: Jossey-Bass.

**Appendix**

***Participating Companies***

Aeroject
Air Products/Chemicals
Amdahl Corporation
American Honda
American Home Products
Ampex
Amtech Systems Corp.
Applied Material
John Deere
Key Tronic Corp.
La-z-boy Chair Co,
Laguna Industries
LSI Logic Corporation
Marshall & Ilsley Corp.
Masco Corp.
Maytag/Admiral Products

AT&T Manufacturing
Ball Corporation
Bausch & Lomb
Bell Group
Brown Forman Corp.
Campbell Soup
Coca-Cola/Dr. Pepper
Coors Brewing
Crestline Plastics, Inc.
Detroit Diesel
Dr. Pepper/7-Up
Duracell Int'l.
Ethicon Endo-Surgery
Farmland Industries
Fleetword Enterprises
Ford Motor Company
General Mills, Inc.
Gold Kist Inc.
Harris Semiconductor
Hart Schaffner & Marx
Heinz
Hillenbrand
Honda of American Mfg.
Honeywell Defense
Hormel Foods
Jaguar Precision
Micron
Milliken
Mobil
Ocean Spray
OTC
Paccar
Pfahler Mfg.
Pfizer-Food Science
Pharmacia
Precision Computer System
Raytheon Co.
Reynolds Aluminum
Rubbermaid
SC Johnson Wax
Scheaing Plough Corp.
SCJ Ploymer-Resins
Silicon Graphics
Snap-On
Sunbeam-Oster
Teledyne Ryan
Tyco Toys, Inc.
Westinghouse
Westinghouse Test
Xynatech
Zytec

# Improving learning networks.
## No 'one best way' for developing learning systems in organizations

Loes E.C.M. Tijmensen
University of Nijmegen, The Netherlands

Ferd J. Van der Krogt
University of Nijmegen, The Netherlands

*This paper focuses on differences and dynamics in organizing and improving learning systems. Actors such as managers and workers play an important role in improving learning systems. We will discuss our findings from two learning system development projects, -Water and Bridge- by focusing on the actions and strategies of different actors in the learning system.*

What is the best way to organize learning systems for employees in corporations? Learning systems can be organized and developed in several ways and in several directions. Actors -such as individual and groups of employees, HRD-professionals and managers- play an important role in organizing and improving learning systems. These actors can have different views (learning action theory) on what direction the learning system should develop, as is shown in the following example:

> In a Dutch consultant organization, the consultants and their managers agreed on using a new test 'x' in the consultancy practice. In orde to be able to use the new test and interpret the results in a professionally correct manner, the consultants want to follow a course especially developed for this test by their professional field. The learning director however, thinks that an internal trajectory in which the consultants themselves discover how to use and interpret the test will be sufficient.

We see that a new learning trajectory needs to be developed in order to use test 'x'. But what learning trajectory would be best? The learning director and the consultants differ in their views on what direction to organize the learning trajectory: an internal trajectory withoudt interference of the professional field, or an external trajectory. Apparently, there are different ways to organize learning systems in organizations and different directions in which learning systems can develop. We believe that organizing and developing learning systems can be seen as the results of actions of different actors within and around the organization. The learning-action theories and strategies of actors and their position in the learning network, play an important role in improving learning systems. Despite long term interest in the organization of learning systems, hardly no attention is paid to the actions of different actors in organizing and improving the learning system. In this paper we will focus on the actions of actors (called actor strategies) in developing learning systems in two organizations, based on the learning network theory (Van der Krogt, 1995).

### Theoretical Framework

In literature several theoretical perspectives on the organization of learning systems can be found (see for example Van der Krogt, in press; Brinkerhof & Gill, 1994; Marsick & Watkins, 1993). In this paper we will use the learning network theory (Van der Krogt, 1995).

#### The learning network theory: developing learning networks in organizations

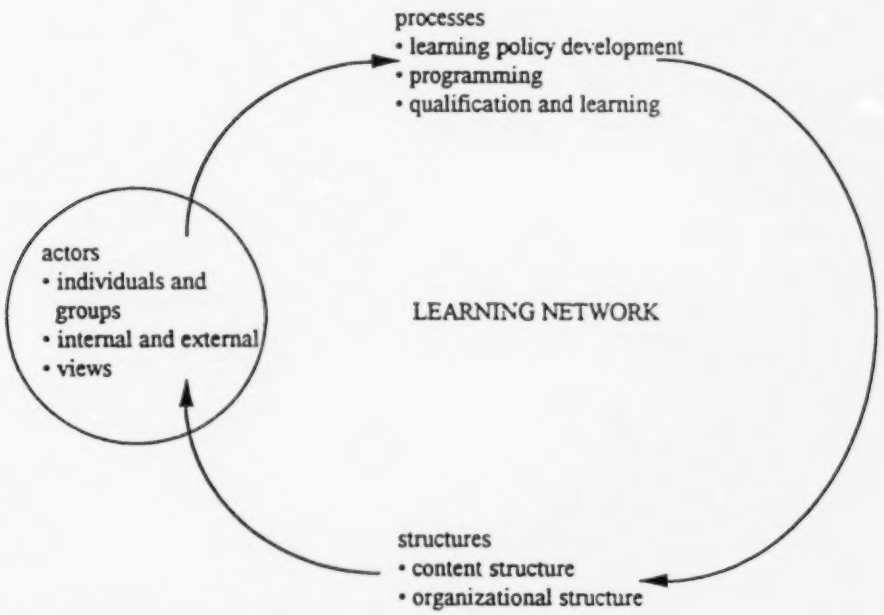
In the learning network theory (Van der Krogt, 1995), a network approach to organizing is applied to learning systems. This means that an organization is conceived of as a network of actors who undertake actions in interaction and thus shape the structure (Nohria, 1992; Baker, 1992).
Learning systems in organizations are also conceived of as a network of actors who undertake actions relevant to learning of workers. Learning networks are then viewed as a network of actors who undertake actions in three main processes of the learning network -learning policy, learning programmes and qualification- and so shape the structure.



*© copyright, Loes E.C.M. Tijmensen and Ferd J. Van der Krogt*

***Learning networks and actors.*** Learning activities (and work activities) take place in *networks*, that is to say more or less durable structures of co-operation between actors within and around organizations, set up to tackle certain problems and achieve certain goals. The term *actor* should be understood in a broad sense (Brinkerhof & Gill, 1994). It is not only trainers and managers who serve as actors in learning networks, but other groups and organizations as well, including for instance training counsellors, course developers, middle managers, personnel department staff, foremen, buyers, suppliers and the employees, i.e. the learners themselves. Moreover, actors can come from within or outside the organization - think, for instance, of external training advisors and educational institutes. Every actor has its ideas and views on learning and will undertake actions according to these ideas and views. The learning action theories of actors can differ from each other. The learning activities of actors have their origin in the learning action theories and can also differ from other actors.

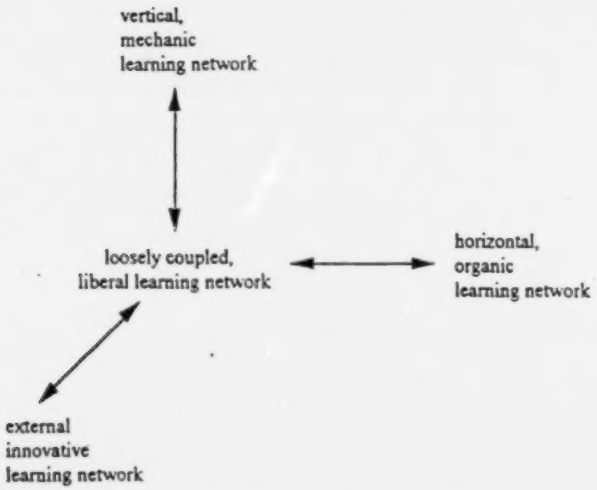
Figure 1: learning network with actors, processes and structures




***Learning networks: structure and processes.*** Learning networks have a certain *structure*. Firstly an organizational structure, that is to say a certain division of tasks, responsibilities and authority among the participating actors. In the organizational structure we also find the procedures that among others will specify which actors will be participating in which processes. Secondly the content structure, comprising the whole of the learning situations (formal and informal, on- and off-the-job) available to the actors in order to create learning programs. Learning networks also have a learning climate. That is to say the norms and values that are manifested into the structure and so give direction to the actions of the actors.
Within these structural context, the actors continually work together to shape the three *main processes* of the learning network: the design of learning policy, the development of learning programs and carrying out learning activities (qualification and learning).

***Development space and dimensions.*** Learning networks are not static but constantly evolving structures of co-operation. The actors are important motors of the *development* of learning networks. They give new impulses to the learning processes in the learning network. As a consequence the learning network can develop into another direction (see also figure 2).

Figure 2: three-dimensional space for the analysis of learning networks, types of learning networks and development lines




Actors can develop learning networks in different directions, which can be visualized by means of a three-dimensional space, the three dimensions being:

- a *vertical dimension*, representing the extent to which the processes are steered from above, by management. A development of the learning network along this dimension implies a strengthening of hierarchical control by means of policy plans, formalized training programs and strict guidance of course participants. Taken to its extreme, verticalization can lead to a hierarchical, mechanically organized learning network.
- a *horizontal dimension*, representing the extent to which the processes in the learning networks are steered from below, by groups of members of the organization. A strengthening of this dimension implies a development of shared views on training and learning and an intensification of group co-operation on the programming and implementation of learning trajectories. Taken to its extreme, this dimension will create a horizontal, organically organized learning network.
- an *external dimension*, representing the extent to which the processes are steered from the outside, by external actors. Development along this dimension implies greater influence of organizations such as R&D institutes, trade organizations and training institutes on the development and implementation of learning programs. The extreme type on this dimension can be referred to as the external, innovative learning network.

In addition to the three above-mentioned development lines, a *fourth direction of development* can occur, namely the *'liberalization'* of the learning network. This development implies a weakening of the vertical, horizontal as well as external dimensions, giving the individuals greater freedom to develop learning trajectories and undertake learning activities independently, on the basis of their own views and needs. In its extreme form, the resulting learning network can be typified as a loosely coupled, liberal/individualist learning network.

***Differences between learning networks.*** The three-dimensional space also allows us to take 'snapshots' of learning networks by determining their position along the three dimensions at any given time. An existing learning network in an organization will only rarely correspond with one of the four possible extreme types (and so be situated on the extreme end of one dimension); combining elements of all dimensions, it will generally be located at a certain point in the space in between the dimensions.

**Actor-network-approach: improving learning networks.**

***Actor strategies and development of learning networks.*** Actors shape the learning processes and the structure of the learning network (see figure 1). This also opens possibilities to change and improve learning networks. Through their actions actors give new impulses to the learning network. Actors can give new impulses in

various ways and also the learning network can evolve in different directions. This is what we call actor strategies: the whole of actions of an actor in one (or more) learning processes which can develop the learning network into a certain direction. All actors in a learning network have more or less explicated ideas and views in relation to improving learning networks. We believe that actors will try to change the learning network in directions according to their ideas and views. As starting point for change, actors can use different processes. Actors can try to influence the learning policy, actors can try to realize changes in the learning program but also in the qualification proces. We use the three-dimensional space to distinguish between several lines of development. That is to say, that the learning network can develop into a more or less vertical, horizontal or external direction. Most of the time the learning network will improve along a combination of development lines. So, in this way strategies of different actors can bring about changes in certain directions of the learning network.

***Different actor strategies***. Content and direction (and efficacy) of the strategies of the actors are related to:

- the learning action theories of actors
- the present structure of the learning network and the position of different actors. We presume that the position an actor holds in the learning network will strongly influence the content and direction of the strategy. Workers, for example, will more often be able to influence the qualification process, whereas education professionals will have more influence on the learning program.
- the strategies of other actors in the processes. Actors actively operate and interact in the learning network, and also differ in their actions.

We expect to find different strategies of actors in the three processes. The strategies are not only dependent on the conceptions of the actors themselves, but also on the context in which the actors interact. We believe that the present position of the learning network in the three dimensional space will be of great importance for the strategies of different actors.

**Research questions and assumptions**

The research is based on the following two main questions:
a) Is there a relationships between the position of actors in the learning network and the strategies of those actors, and b) are there differences between strategies of different actors. We expect that actors will use different strategies according to their position in the learning network. For example: in an external learning network actors will give impulses into a vertical, horizontal or liberal direction; in a liberal learning network, actors will use strategies that lead to a more vertical, external or horizontal learning network. We expect that actors such as managers, educators, workers will use divergent strategies. In this respect also the strategies of external actors, such as consultants are deemed to be important.

Based upon these two main questions the following specific research questions were answered in this study:
1. The first question refers to whether we can find differences between the two learning networks of Water and Bridge.
   - in which respect do elements of the learning networks of Water and Bridge differ from each other?
   - where can we position the learning networks of Water and Bridge in the three-dimensional space?
2. The second question refers to actor strategies.
   - what actors play an active role in the learning network of Water and Bridge?
   - what actions are undertaken by those actors en especially in which processes and in what direction in the three-dimensional space?
   - can we find differences between strategies of different actors?

**Design and research method**

We have conducted an exploratory research on the basis of two learning-network development projects in two organizations: Water and Bridge. Both projects were analyzed and conducted by researchers of the Nijmegen university. On the data collected during the two projects we have conducted a secondary, comparative analysis.

*a) Two learning network-development projects.* In both organizations the learning network development project was executed according to the tradition of organization-development. This means that we have diagnosed the actual learning network and discussed the results of the diagnose with actors in the organization.

*Diagnose actual learning network.*

The information about the learning networks at Water and Bridge was collected using the following methods:

- analysis of documents, including annual reports and internal discussion papers;
- formal interviews with the board members and workers using topic lists based on the learning network theory. In every organisation interviews were held with ten respondents.;

This information was recorded in extensive reports which were then analysed on the basis of the different elements of the learning network theory. The aim of this analysis was to typify the learning networks, that is to say, to situate the networks in the three-dimensional space.

*Feedback.*

The results of these analyses were then discussed in the management. On the basis of these discussions we made agreements with the management on further actions in the organization. In Water the research results were discussed in a plenary meeting, whereas in Bridge the board members have extensively discussed the results. In both organizations further plans of action were developed on the basis of these discussions.

***b) The secondary analysis.*** The roughly structured data and analysis results were used to answer the specific research questions with respect to the place of the learning network in the three dimensional space and the strategies of the different actors.

## Results

In order to answer the above mentioned questions, we will first describe the learning networks of respectively Water and Bridge (see table 1 below), followed by the strategies of the different actors.

*1 Learning networks of Water and Bridge;*

Based on the document analysis and the interviews, the elements of the learning network are described. In the table below we have put together the elements of Water and Bridge in order to show the differences between the two learning networks.

**Water** emerged from a professional organization. In a professional organization the highly trained professionals execute their work according to the procedures and techniques developed by their vocational field and educated to the individual professionals. The initial education as well as the continuing professional education of the professionals is very important. In both educational programs the vocational field plays an important role. In Water, however, the learning network is strong in its initial education but very limited in its continuing professional education. After the initial training, the individual workers themselves take care of their continuing professional education. For this reason, we typify the learning network of Water as a rather **limited external learning network**. This, however, gives cause to many problems. The work of the approximately 30 consultants is changing rapidly. The tasks of the consultants are more broadened. The initial education is therefore shortcoming and the existing methods are not adequate anymore. Until now, the vocational field did not succeed in offering an adequate training. Also within the organization there is not a suitable learning program for the consultants. The individual consultants have the responsibility to develop their competencies and to educate themselves. This only happens on an incidental basis. In the three-dimensional space we situate the learning network of Water on the external dimension, but it is rather limited.

Table 1: Elements of the learning network in Water and Bridge.

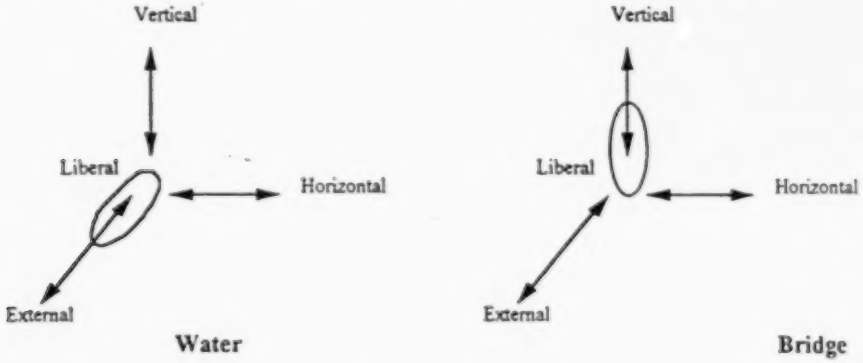
| | **WATER**<br><br>**Limited, external learning network** | **BRIDGE**<br><br>**Entrepreneurial, liberal learning network** |
|---|---|---|
| **Actors**<br>- managers<br>- training specialists (internal)<br>- workers<br>.individual<br><br>.collective<br>- external actors | little learning actors<br>.a member of management<br>.none<br><br>.individual workers, passive<br><br>.none<br>.professional field is passive | individual learning actors<br>.an active learning director<br>.none<br><br>.entrepreneurial individual workers<br>.none<br>.individual external actors<br>.an external training organization |
| **Processes** | few actions | especially individual learning and facilitate |
| -policy making | none | by learning director and management team |
| -learning programming | .internal few,<br>.external, incidental by professional field | .stimulated by learning director<br>.by individual actors, internal and external |
| -executing (learning) | incidental by workers | individual learning plans |
| **Structures** | | |
| -content structure | incidental courses external | .courses internal<br>.learning on the job |
| -organizational structure | not elaborated positions and procedures | .explicit roles and responsibilities<br>.some procedures |
| -learning climate | .passive<br>.not stimulating | .entrepreneurial<br>.learning is important<br>.individual responsibility |

**Bridge** is founded by some creative and entrepreneurial psychologist, who wanted to bring into practice their ideas on education and development of individuals. In the past twenty years the ideas of the founders has been deepened and translated into training programmes and organizational consultancy projects. Bridge is now a blooming organization with about 75 trainers/consultants. The learning network of Bridge is still tuned to transfer the basic conception and to further develop it. The learning programmes for the trainers/consultants partly consist of courses on this subject. There is a lot of attention for learning on-the-job. The trainers/consultants use the evaluation data (offered by the clients on the basis of evaluation forms or feedback conversations) that they become on their work to reflect on their methods an try to improve them. In the learning network of Bridge the learning director is an important actor. He tries to give more structure to and at the same time broadens the learning program and the courses offered. He also tries to explicate the learning policy. However, the starting point for the individual workers is still that they are personally responsible for their own learning. We typify the learning network of Bridge as a

*entrepreneurial, liberal one.* However, there are strong tendencies to steer the learning network more from the top by the management team (vertical tendency).

In the three dimensional space we situate Water and Bridge as follows:

Figure 3: learning networks of Water and Bridge in the three dimensional space.




*2 Action strategies of actors to improve the learning network.*

Before the start of the learning network development project there was no learning policy in **Water**. Only on an incidental basis learning activities were undertaken by management and consultants. The project gave rise to the *board of directors* -with one member in a leading role- to reflect on the learning network. Therefore study meeting was organised, by the directors in co-operation with the researchers. In this meeting the researchers explained the research on the learning network of Water; further on the consultants discussed in small groups with members of the board of directors on the actual situation (of the learning network) and on a new learning policy. The board hoped through this meeting to strengthen the responsibility of the consultants for their own learning. The actions of the workers *(consultants)* were in this project limited. They explicated that they wanted more study facilities. Some of them expressed the importance of their vocational field. These limited actions in the learning policy process can be viewed as indications for a development in the external and individual dimension. A third group of actors are the *researchers*. Their actions in this project took place within the framework of the design of learning policy. They tried to stimulate the development of ideas on the learning network by the board members as well as the workers, and underlined the importance of systematically develop the learning network. They tried not to take an explicit point of view but to be neutral on the direction in which the learning network should be improved. It is important to notice that *other external actors* were not active in the learning network of Water.

In **Bridge** there was already a lot of attention for the learning network. Especially the *learning director* was systematically influencing the learning policy and learning programming. His actions can be viewed as a strengthening of the vertical dimension in the learning network. The board of directors wants to influence more strongly the learning of the trainers/consultants and to strengthen group learning processes. The research gave rise to discussions along the project with board members and with representatives of the trainers. The dominant action strategy of the *trainers/consultants* was focused on strengthening their own individual competencies. In that sense it fits in the actual entrepreneurial, liberal learning network. Some trainers/consultants explicate that they want to work and learn in groups. This refers to a strategy on the horizontal dimension. The *researchers* expressed in their interventions that the learning network of Bridge what rather limited in its one-faceted position on the liberal-vertical dimension of the learning network. A more multi-faceted learning network with more attention for the horizontal and external dimension would provide more opportunities for realizing innovations. It is interesting to notice that the *vocational field* is not an active actor in the learning network. However, clients put their stamp upon the learning activities of the consultants of Bridge through their evaluations.

## Conclusions and perspectives

**a) Differences in the learning networks of Water and Bridge**

In the cases we studied, we found that the actual position of learning networks can be expressed in dimensions. Learning networks can be given a certain value on the different dimensions: individual-horizontal; individual-vertical; individual-external. The differences in the learning networks are then expressed in terms of the three-dimensional space. The learning network of *Water* is relatively low on the vertical and horizontal dimension and limited on the external dimension. The learning network of *Bridge* is -in comparison- relatively low on the horizontal and external dimension, but stronger on the liberal-vertical dimension. The three-dimensional space shows us that the learning network of Bridge and of Water differ. Not only theoretically, but also empirically, we can conclude that learning systems differ. The learning system of Water can be typified as a liberal, limited external learning system. The learning system of Bridge can be typified as a liberal, limited vertical learning system.

**b) Different strategies in Water and Bridge.**

Globally, we found indications for different strategies in Water and Bridge. In Water there is a global tendency towards individualization (liberalization) of the learning network, demonstrated by making the individual employees responsible for their own learning. In Bridge there is a global tendency towards more verticalization of the learning network, demonstrated by a hierarchilazing of the learning network (especially more steering from the top). Less noticeable in our cases is a global tendency toward greater horizontalization.

**c) Actors have different strategies: processes and directions**

Looking at the actions of different actors or group of actors, we can find indications for different strategies of actors or groups of actors. In **Water**, actors that were playing an active role in the learning network, were the board of directors, the workers and the researchers. The board of directors was active in the learning policy. Their strategies were considered as liberalization and verticalization (liberal-vertical dimension). The workers were along the project also active in the learning policy: their strategies were considered as externalization and liberalization (liberal-external dimension). In **Bridge**, actors that were playing an active role in the learning network, were the board members and especially the learning director, the workers and the researchers. The board members and especially the learning director were active in the learning policy and the learning programming. Their strategies were considered as a strengthening of the vertical dimension. The trainers were active in the qualification process and the learning program. Their strategies can be considered as strengthening the liberal dimension and the horizontal dimension. The strategies of the actors can be viewed as to some extent contradictionary to and to some extent correspondent with each other. In both cases we believe we found indications that different actors have different strategies. Through their actions in different processes in the learning network they try to influence the learning network development line in a direction that is more suitable.

Learning systems have a certain durability, but fundamentally they are dynamic and in that way unstable, because actors actively operate within and with the structures and processes they encounter. As we saw, actors in variable relationships give continuously form to the three main processes of the learning system. In that way we believe there is no one-best-way for developing learning systems in organizations. Simple and universally valid recipes for improving learning networks cannot be given. The learning network theory sees improvement as a 'normal' process in a learning network development process. The actors in and around the learning networks give new impulses to the three main processes. The possibilities that actors have to realize such improvement depend highly on their position in the network and on their and other actors' action theories.

## How this research contributes to new knowledge in HRD

There is a narrow empirical basis of the analysis of actions and strategies of actors. Insights in actions and strategies of actors can give a better understanding of ways to improve learning networks. Findings of this study underline the importance of insights in actor actions and the directions of actor strategies. In future research we should refine this more in order to enhance our understanding of the learning network and its dynamics.

**References**

Baker, W.E. (1992), The network organization in theory and practice. In Nohria, N. & R.G. Eccles (Eds.)of: *Networks and Organizations: structure, form and action.* Boston, Massachusetts (Harvard Business School Press), 397-429.

Brinkerhof, R.O. & S.J. Gill (1994), *The learning alliance - Systems thinking in human resource development.* San Francisco (Jossey-Bass Publishers)

Marsick, V.J. & K.E. Watkins (1994) Sculpting the learning organization. San Francisco (Jossey-Bass Publishers).

Miles, M.B. & A.M. Huberman (1984), *Qualitative data analysis. A Sourcebook of new methods.* Beverley Hills, Ca (Sage)

Mintzberg, H. (1989), *Mintzberg on management.* New York (Free Press)

Nohria, N. (1992), Is a network perspective a useful way of studying organizations? In: Nohria, N. & R.G. Eccles (Eds.) of: *Networks and Organizations: structure, form and action.* Boston, Massachusetts (Harvard Business School Press), 1-22

Van der Krogt, F.J. (1995), *Leren in netwerken. Veelzijdig organiseren van leernetwerken met het oog op humaniteit en arbeidsrelevantie.* Utrecht (Lemma)

Van der Krogt (in press): Learning Network Theory; the tension between learning systems and work systems in organizations. *Human Resource Development Quarterly.*

# Learning-project Structures in Different Work Types: An Empirical Analysis

*Rob F. Poell*
*University of Nijmegen, The Netherlands*

*This study demonstrates that work-related learning projects can be organized using different structural arrangements. Sixteen learning projects conducted by ninety-six participants in three different work types were analyzed and compared both qualitatively and quantitatively. Learning-project structures were found to be related to the type of work in which they were carried out, but only to a certain extent. In some cases, the choices made by the participants resulted in learning-project structures that were different from the ones expected solely on the basis of the work type.*

A learning project is an instrument to systematically organize learning activities around a central work-related theme or problem (Poell & Van der Krogt, 1997). By solving work-related problems in a learning project, participants can enhance their qualifications and improve their work at the same time. An example of a learning project is an interdisciplinary group of medical doctors who learn to perform a novel treatment by developing a series of work-based experiments supplemented with evaluation sessions; or, a group of organizational consultants who improve their advisory skills by a combination of theoretical study, practical experiments, intervision, and supervision sessions (Poell, Tijmensen, & Van der Krogt, 1997).

These examples show that learning projects can be organized in different ways. Four theoretical models of learning projects can be derived from the learning-network theory (Poell, Van der Krogt, & Wildemeersch, 1997a). The learning-network theory (Van der Krogt & Warmerdam, 1997) explains how corporate learning systems are organized by relating them to the organization of work (Mintzberg, 1979). We apply this line of thought to the group learning level, inferring that the organization of group learning projects is related to the type of work in which they are carried out.

This study focuses on the structural arrangements within learning projects, namely the profile of the learning program (content structure), the division of tasks among the participants (organizational structure), and the incorporation of norms and values with regard to learning (climate). The four models that were derived from the learning-network theory, and their relationship to various work types are summarized in Table 1.

*Vertical* learning projects are highly pre-structured, usually by a trainer. The learning activities prepare the employees for specific and well-defined tasks. These are neatly designed and linear learning programs, with fixed rules as to who is responsible for what actions. This type is expected in machine-bureaucratic work, which is characterized by extensive task-division and little complexity. In *horizontal* learning projects, the responsibilities are not centralized in the hands of a trainer but equally distributed among all participants. Employees as a group try to find solutions to organizational problems in an incremental way. Group learning is integrated with organizational problem-solving. We expect to encounter this type in adhocratic group work, which features highly complex and ill-structured, often interdisciplinary group tasks. In *external* learning projects, employees are inspired by professional developments outside their own organization. The learning activities equip the employees to become better at their profession. The learning program incorporates the latest insights from the professional domain. This type is assumed to occur in professional work, which has highly complex but reasonably well-defined jobs. *Liberal* learning projects give individual employees the freedom to choose a learning program encompassing loosely coupled activities without much of a group structure. Each individual is empowered to solve his own work problems, and responsible for his own learning. We expect to find this type in entrepreneurial work, which is characterized by individuals performing ill-structured but not too complex jobs.

*Copyright ©1998 Rob F. Poell*

**Table 1. Four Theoretical Types of Learning Projects in Terms of Structures, and the Corresponding Work Types**

| | *Vertical* | *Horizontal* | *External* | *Liberal* |
|---|---|---|---|---|
| *Content Structure* | task oriented | organization oriented | profession oriented | unstructured |
| *Organizational Structure* | centralized | egalitarian | externally inspired | loosely coupled |
| *Climate* | regulated | integrative | inspiring | liberal |
| *Corresponding Type of Work* | machine-bureaucratic work | adhocratic group work | professional work | entrepreneurial work |

A notion underlying the theoretical framework described above is that a certain work type more or less calls for corresponding learning-project structures. But is this a valid notion? Are learning-project structures really determined by the type of work in which they are carried out? In order to shed light upon this problem, the following research questions are investigated.

1. In which types of work do learning projects take place?
2. Which types of learning projects can be distinguished on the basis of their structures?
3. Are the structures related to the type of work in which the learning project is conducted?

We hypothesize that learning-project structures will emerge in accordance with the type of work in which they are conducted, as summarized in Table 1.

## Methodology

***Design.*** The study is a comparative analysis of sixteen learning projects conducted by employees, managers, and HRD staff. The learning projects were selected to include different work types, especially along the machine-bureaucratic/professional dimension. The study was designed as a multiple case study combining qualitative and quantitative cross-case analysis (Miles & Huberman, 1994). Ninety-six people in six organizations took part. The number of participants per learning project ranged from three to twelve. An overview of the sixteen cases in terms of the participants, their organizations, and the themes to their learning projects, is provided in Table 2.

***Procedure.*** All available documents of each learning-project case were studied, for example minutes of learning group meetings, proposals for learning programs, and evaluation sheets. Participants were selected for interviews on the basis of these documents and initial talks with key persons. Employees, managers, and HRD staff were interviewed about the learning project using a semi-standardized topic list. Interview topics included: participant's definition of the central problem; learning activities undertaken by the participant; the role played by the participant in the policy development, program development, and qualifying process; work characteristics. The interviews lasted sixty to ninety minutes and were tape-recorded.

Fourty-one interviews for cases B1, B2, D1, D2, E1, E2, F1, and F2 were held from September, 1996 through June, 1997. Two to three page summaries were made by the interviewer and offered to participants for correction and legitimization. Twenty-seven summaries (65 %) were returned to the interviewer containing additional information. Analysis of these eight cases was performed using twenty-seven corrected and fourteen initial interview summaries, supplemented with the available documents.

**Table 2. General Characteristics of Sixteen Learning-project Cases**

| *Organization* | *Case* | *Learning Theme / Problem* | *Participants* |
|---|---|---|---|
| Institution for Mentally Handicapped | A1 | developing a care vision | community supervisors |
| | A2 | individual care planning | community supervisors |
| Electronics Firm | B1 | optimizing work processes | process operators |
| | B2 | improving internal communication | developers, technicians, process operators |
| Academic Hospital | C1 | developing a new work method | medical doctors |
| | C2 | introduction of new work equipment | nurses |
| | C3 | multidisciplinary collaboration | medical doctors, paramedics |
| | C4 | patient-centred care | nurses |
| General Hospital | D1 | efficient work planning | chemical analysts |
| | D2 | functional differentiation and collaboration | nurses |
| | D3 | improvement of work climate | secretaries, administrative staff |
| | D4 | improvement of work climate | chemical analysts |
| Night School for Adults | E1 | open learning for adult students | teachers (liberal arts) |
| | E2 | self-directed learning of immigrant students | teachers (Dutch as a second language) |
| Consultancy Firm | F1 | the learning organization | HRD consultants |
| | F2 | the learning organization | innovation consultants |

Fifty-five interviews for cases A1, A2, C1, C2, C3, C4, D3, and D4, which were held from April, 1994 through June, 1995, were re-analyzed. Twenty-four full transcripts and fifty-five summaries of the interview sessions were used in the analysis of these eight cases, supplemented with the available documents.

***Qualitative Analysis.*** A computer program for qualitative data analysis, called Kwalitan (Peters & Wester, 1990), was used to score interview scenes. In order to answer the first research question, the work type in each case was compared with the four theoretical models of machine-bureaucratic work, adhocratic group work, professional work, and entrepreneurial work. In order to answer the second research question, a qualitative analysis was conducted for each learning project, focusing on the content structure, the organizational structure, and the learning climate. To determine the nature of the structures, they were compared with the four theoretical models of learning projects.

***Quantitative Analysis.*** To sustain and extend the initial analysis, the qualitative information was quantified. The learning-project structures were scored on four nine-point Likert scales to reflect the extent to which they resembled each of the four theoretical models. For instance, if the organizational structure was found to be egalitarian, the horizontal type scored '9' and the other types '1'. If the

content structure was both profession and problem oriented, the external and horizontal types scored '5' and the other two '1'. This enabled us to compute the differences (in terms of the Euclidean distances) between the learning-project cases. A similar procedure was used to quantify work types. The work type was scored on four nine-point Likert scales to reflect the extent to which it resembled each of the four theoretical models. The quantification procedure enabled us to conduct an hierarchical cluster analysis of both learning-project types and work types, based on squared Euclidean dissimilarity coefficients. In order to answer the third research question, the learning-project clusters were cross-tabulated with the work clusters.

**Results**

Table 3 describes the results of the qualitative analysis of sixteen cases. They were found to differ with respect to the work type. The learning projects were found to differ regarding their content structure, organizational structure, and climate. These results are elaborated below.

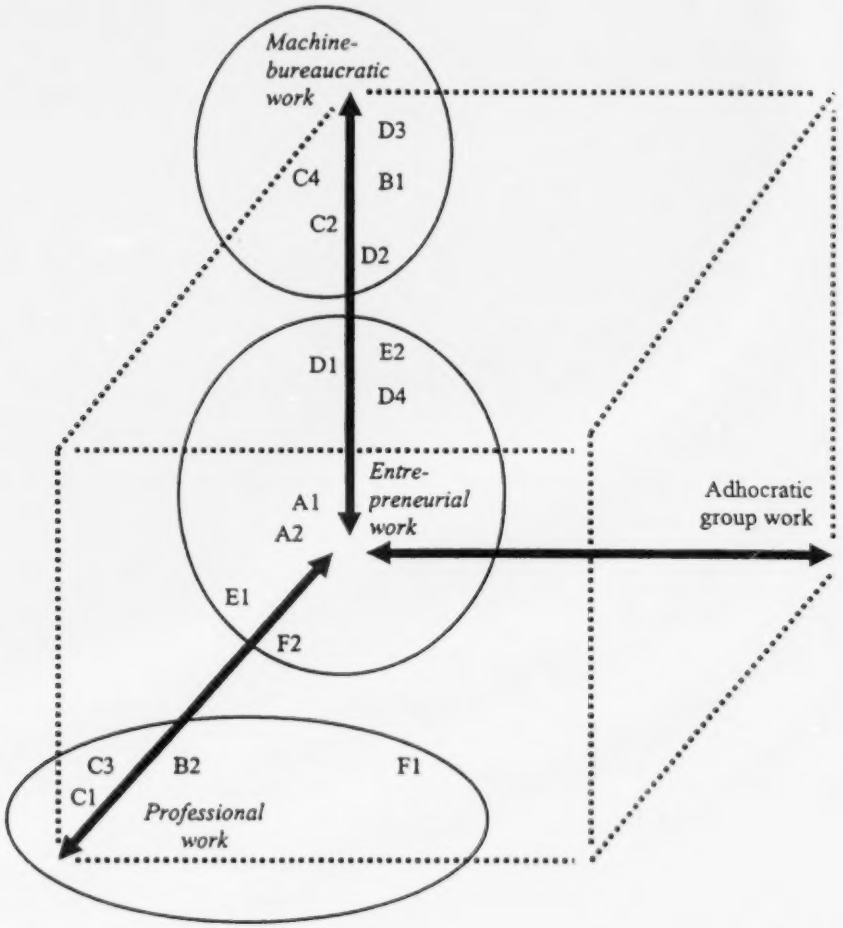
**Table 3. Sixteen Learning Projects Characterized by Work Type, Structures, and Learning-project Type**

| | A1 | A2 | B1 | B2 | C1 | C2 | C3 | C4 | D1 | D2 | D3 | D4 | E1 | E2 | F1 | F2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *WORK TYPE* | e | e | m | pe | p | me | p | me | em | me | m | em | ep | em | pa | ep |
| *STRUCTURES* | | | | | | | | | | | | | | | | |
| Content Structure | t | up | pot | op | po | t | op | to | tpo | uo | to | to | po | t | up | pu |
| Organizational Structure | c | lcx | c | cel | xe | c | ex | c | c | lce | ce | ce | e | lc | l | x |
| Climate | r | l | gl | gl | ig | r | gi | r | r | l | rg | rg | gli | lr | lg | li |
| *LEARNING-PROJECT TYPE* | v | lxv | vh xl | hlv x | xh | v | hx | vh | v | lhv | vh | vh | hx | vl | lh x | xl |

*Note.* Four kinds of work: m = machine-bureaucratic, a = adhocratic group, p = professional, e = entrepreneurial. Four kinds of content structure: t = task oriented, o = organization oriented, p = profession oriented, u = unstructured. Four kinds of organizational structure: c = centralized, e = egalitarian, x = externally inspired, l = loosely coupled. Four kinds of climate: r = regulated, g = integrative, i = inspiring, l = liberal. Four kinds of learning-project types: v = vertical, h = horizontal, x = external, l = liberal.

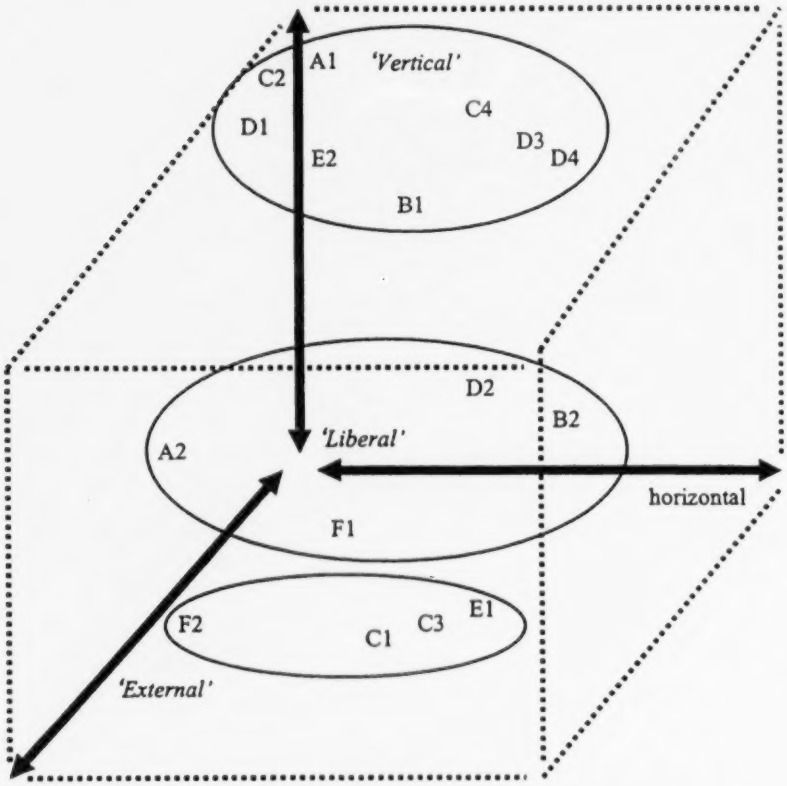
***Types of Work.*** As shown in Figure 1, the sixteen cases were found to cluster around three types of work, namely machine-bureaucratic work (n=5), entrepreneurial work (n=7), and professional work (n=4). In no cases the work type was found to resemble adhocratic group work. As a result of the clustering process, the participants in this study deemed to perform machine-bureaucratic work include the process operators, nurses, and secretaries; entrepreneurial work is carried out by the community supervisors, chemical analysts, teachers, and innovation consultants; professional work is conducted by the process developers, medical doctors, and HRD consultants.

**Figure 1. Characterization of Cases by Work Type**




***Learning-project Structures.*** The variation in learning-project structures as compared with four theoretical types is indicated in Figure 2. On the basis of these structures, three clusters of learning projects emerged from the analysis. These are referred to as 'Vertical' (n=8), 'Liberal' (n=4), and 'External' (n=4) learning projects. Each cluster encompasses some cases with horizontal structural elements, which makes the types more hybrid.

**Figure 2. Characterization of Cases by Learning-project Type (Based on Structures)**




***The Relationship Between Learning-project Structures and Work Type.*** Table 4 shows the relationship between learning-project structures and work type. No 'Vertical' learning projects were found in professional work. Similarly, no 'External' learning projects emerged in machine-bureaucratic work, where 'Vertical' learning projects were most encountered. 'Liberal' learning projects appeared in all three work types. Entrepreneurial work mainly produced 'Vertical' learning projects.

**Table 4. The Relationship Between Learning-project Type and Work Type**

| *Work Type* / *Type of Learning Project* | *Machine-Bureaucratic* | *Entrepreneurial* | *Professional* | *n* |
|---|---|---|---|---|
| *'Vertical'* | 4 | 4 | 0 | *8* |
| *'Liberal'* | 1 | 1 | 2 | *4* |
| *'External'* | 0 | 2 | 2 | *4* |
| *n* | *5* | *7* | *4* | *N=16* |

*Note.* Chi-square=6.629, df=4, sig.=.157

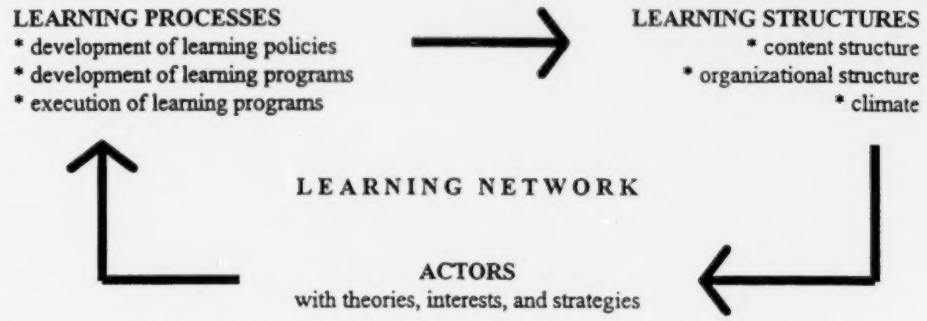
## Conclusion

The results show that learning projects can be organized in many different ways. And although there is a certain relationship between learning-project structures and work type, the latter does not determine the former. A comparison between Figures 1 and 2 shows the variation in learning-project types to exceed the variation in work types. It appears to be unlikely that learning-project structures are totally different from the corresponding work type. On the other hand, knowledge about the work type does not imply knowledge about the exact kind of learning project to be expected.

This result can be explained by the concept of organizational choice (Child, 1997), meaning that the structure of organizations is never completely determined by its environment because people's actions are also crucial. Participants in learning projects can choose to create learning structures that are related to the current work type to a greater or lesser extent (Poell, Van der Krogt, & Wildemeersch, 1997b). In some cases, the participants will create learning-project structures that correspond exactly to work characteristics. In other cases, they will use different strategies, for instance in order to change the content or organization of work.

The learning-network theory (Van der Krogt & Warmerdam, 1997) provides a similar explanation. On the one hand, it regards the structure of a learning network as resulting from the interactions between organizational actors (e.g., employees, managers, trainers, and external bodies), whilst creating processes such as the development of learning policies, the development of learning programs, and the execution of these programs. This relationship between process and structure is embodied in the top arrow of Figure 3. On the other hand, the structures that are thus (re-)produced influence the actors in the choices they make. The options for organizational choice are provided but also limited by the existing structural arrangements. This relationship between structure and organizational actors is visualized in the bottom right arrow of Figure 3. The remaining bottom left arrow indicates that different actors have different theories and interests upon which they act. Only when interacting to create learning processes do the different strategies of organizational actors come to the fore. The latter observation is more fully investigated in Poell, Van der Krogt, & Wildemeersch (1997b).

**Figure 3. Organizing learning as a network**




**References**

Child, J. (1997). Strategic choice in the analysis of action, structure, organizations and environment: retrospect and prospect. *Organization studies, 18*(1), 43-76.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). London: Sage.

Mintzberg, H. (1979). *The structuring of organizations.* Englewood Cliffs, NJ: Prentice Hall.

Peters, V., & Wester, F. (1990). *Qualitative analysis in practice: Including user's guide Kwalitan version 2.* Nijmegen: University of Nijmegen, Department of Research Methodology.

Poell, R. F., Tijmensen, E. C. M., & Van der Krogt, F. J. (1997). Can learning projects help to develop a learning organisation? *Lifelong Learning in Europe, 2*(2), 67-75.

Poell, R. F., & Van der Krogt, F. J. (1997). Organising work-related learning projects. *International Journal of Training and Development, 1*(3), 181-190.

Poell, R. F., Van der Krogt, F. J., & Wildemeersch, D. A. (1997a). *Solving work-related problems through learning projects.* Manuscript submitted for publication.

Poell, R. F., Van der Krogt, F. J., & Wildemeersch, D. A. (1997b). *Strategies in organizing work-related learning projects.* Manuscript submitted for publication.

Van der Krogt, F. J., & Warmerdam, J. H. M. (1997). Training in different types of organizations: Differences and dynamics in the organization of learning at work. *International Journal of Human Resource Management, 8*(1), 87-105.